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Atty. Dkt: **TUCK002**

APPLICATION

FOR

UNITED STATES LETTERS PATENT

ENTITLED:

SYSTEM AND PROCESS FOR PRESCRIBING MEDICATIONS THROUGH THE INTERNET

Continuation of Provision Application No. U.S.S.N. 60/158,108

APPLICANT: Jeff Tucker

SYSTEM and PROCESS FOR PRESCRIBING MEDICATIONS THROUGH THE INTERNET

5 ## CROSS REFERENCES TO RELATED CASES

This is a continuation of U.S. Provisional Patent Application, serial no. 60/158,108 filed October 7, 1999, now abandoned.

FIELD OF THE INVENTION

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The present invention relates to a system and process for prescribing medications through the Internet. More particularly, the present invention relates to a system and process using a webpage on the World Wide Web that is accessible to by authorized users for entering and retrieving medical prescriptions.

15 ## BACKGROUND OF THE INVENTION

The traditional method of prescribing for a patient in a doctor's office is to send the patient away with a handwritten piece of paper containing the drug therapy information. The patient takes the prescription to a pharmacy where it is filled. Current computerized systems are available among chains of pharmacies so that any store within the chain has access to the prescription thereby allowing the patient to refill the prescription in any city where a member of the chain exists.

20

Computerized systems are also available for hospital computer systems that allow a doctor to enter information regarding a patient, including prescribing drugs, onto the hospital's computer. U.S. Patent No. 5,758,095 to Albaum et al., teaches a

25 system and method for ordering and prescribing drugs using interactive software on a hospital computer system networked with the hospital pharmacy. Means for accepting and processing the information regarding prescriptions includes an interpreter and reformatter means to process the information received in a random sequence. Security is not an issue since patient information and data is contained within the hospital

30 computer system or computer systems having the necessary software and networked to the hospital computer system. It is not accessible outside the system.

Websites are available to the public offering to fill prescriptions, Internet pharmacies for example. Online pharmacies require either a written prescription, authorized by the signature of a licensed doctor to be mailed or faxed to the pharmacy or telephone confirmation for any controlled medications before they can fill the prescription.

What is needed is a secure system and process that doctors can use to prescribe medications for patients so that the prescription can be filled anywhere that has access to the World Wide Web/Internet without a handwritten signature or oral confirmation.

SUMMARY

The present invention provides a surprisingly straightforward system and process for prescribing medications through the World Wide Web via a secured Internet system. Preferably, the system comprises a secured, interactive website for entering and retrieving medical prescriptions, the website accessible via the Internet by a general use computer. The preferred website is secured by encryption. The secured website can be further secured by limiting access to medical personnel having an authorized I.D. code and pharmaceutical personnel having an authorized I.D. code

In one aspect, a remote dedicated server is connected to the Internet with access limited to users having the authorized codes. The remote server can comprise computer hardware capable of storage of data for the website. Preferably, a high security Internet service provider is connected to the remote server for providing access to website by authorized personnel. The preferred system further comprises means for creating a patient file with patient identifying information, means for entering patient prescription into the patient, means for entering data regarding filling of prescription in patient file and means for logging off patient file screen so as to secure patient information.

In one preferred embodiment, the website further comprises Internet links to one or more drug information databases comprising drug history, adverse reactions to drugs, interactions between two or more prescribed medications. Preferably, the website further comprises a database of patient medication history. In one aspect, the remote dedicated server and the Internet system provider are the same computer hardware system. Alternatively, the remote dedicated server and the Internet system provider comprise different computer hardware systems. Preferably, the means for creating a patient file comprises a screen for entering identifying information selected

from a group comprising: patient name, patient social security number, patient driver's license, patient I.D. code or a combination thereof.

Preferably, the authorized I.D. is selected from a group comprising: driver's license number, social security number, a personal code or identification number. Alternatively, the authorized I.D. is selected from a group comprising eye scan, thumb scan, hand scan or finger print scan. In one aspect, the website of this invention further comprises Internet links to health insurance providers.

An alternative embodiment of the invention comprises a process for prescribing medications through the World Wide Web via a secured Internet connection. Preferably the process comprises the following steps:

(a) providing a secured, interactive website for entering and retrieving medical prescriptions, the website accessed by a general use computer connected to the Internet;

(b) securing the website of step (a) by encryption;

(c) further securing the website of step (a) by limiting access to medical personnel having an authorized I.D. and pharmaceutical personnel having an authorized I.D.;

(d) storing data for the website of step (a) on a remote dedicated server computer system connected to the Internet, the remote dedicated server being limited to access by users having the authorized I.D. of step (c);

(e) connecting a high security Internet service provider comprising a computer hardware system to the remote dedicated server of step (d) to provide access to website for personnel authorized according to step (c);

(f) accessing a patient file, if available;

(g) creating a patient file, if not available according to step (f), the patient file comprising patient identifying information, the identifying information selected from a group comprising: patient name, patient social security number, patient driver's license, patient I.D. code or a combination thereof;

(h) entering a prescription into patient file;

(i) retrieval of prescription entered into patient file by pharmacy personnel;

(j) entering data regarding filling of prescription in patient file;

(k) logging off patient file screen to secure patient information.

An alternative system of the present invention comprises a system for storing medical patient records on a secured website. Preferably, the system for storing medical patient records comprises the following:

(a)   a secured, interactive website for entering and retrieving a patient's medical data, the website accessible via the Internet by a general use computer;

(b)   the website of (a) secured by encryption;

(c)   the secured website of (a) further secured by limiting access to medical personnel having an authorized I.D.;

(d)   a remote dedicated server connected to the Internet with access limited to users having the authorized I.D.'s of (c), the remote server comprising computer hardware capable of storage of data for the website of (a);

(e)   a high security Internet service provider connected to the remote server for providing access to website by personnel authorized according to (c);

(f)   means for creating a patient file with patient identifying information; and

(g)   means for entering patient prescription into patient file created in (f);

(h)   means for entering data regarding changes to patient file;

(i)   means for logging off patient file screen so as to secure patient information.

Preferably, the website provided in (a) further comprises Internet links to one or more medical information databases comprising current therapy and medical treatment for medical diseases and disorders. The website provided in (a) can further comprise Internet links to one or more drug information databases comprising drug history, adverse reactions to drugs, interactions between two or more prescribed medications.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a flowchart of one embodiment of the process of the present invention.

Fig. 2 is a schematic of one embodiment of the system of the present invention.

Fig. 3 is a flowchart of an embodiment of the secured log-on steps of the present invention.

Fig. 4 is a flowchart of an embodiment of patient data input.

Fig. 5 is a flowchart of an embodiment of the physician log-on steps and data input.

Fig. 6 is a flowchart of an embodiment of pharmacy log-on and data input.

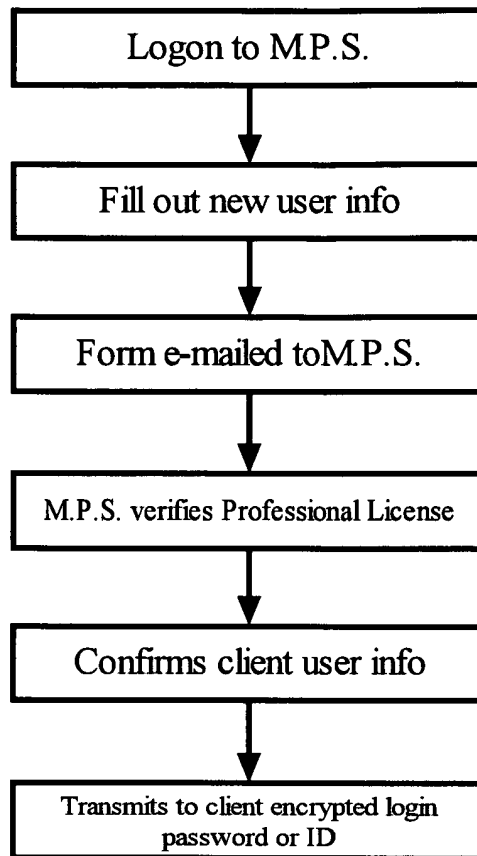Fig. 7 is a flowchart of client registration according to one embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention is a system and process for prescribing medications through the Internet using a medical prescription service website that is

accessible to licensed users for entering and retrieving medical prescriptions. The term "Internet" encompasses the World Wide Web. Advantageously, the system and process is secured by encryption so that only users, the prescribing doctor and pharmacists for example, who are properly identified as an authorized user can enter the secured pages of the website. In this way, a doctor or his authorized medical personnel can enter a prescription quickly and easily onto the secured website of the medical prescription service. The pharmacy selected by the patient can access the medical prescription service website, locate the patient's record, obtain the prescription and fill it within minutes of entry by doctor. The prescription can be entered by any licensed medical doctor from anywhere in the world with access to the Internet, and filled by any pharmacy with access to the Internet. Patient information is secured though an encryption system thereby protecting patient privacy and medical information from the general public.

The users of the systems and processes of this invention are preferably limited to clients who are licensed physicians, their authorized personnel and licensed pharmacy personnel. Licensed physicians means licensed to practice medicine. Preferably, clients are authorized to use the system and processes of this invention by registration as illustrated in the flowchart of Fig. 7.

Fig. 7
Client Registration

```
┌─────────────────────────────────┐
│         Logon to M.P.S.         │
└─────────────────────────────────┘
                 │
                 ▼
┌─────────────────────────────────┐
│       Fill out new user info    │
└─────────────────────────────────┘
                 │
                 ▼
┌─────────────────────────────────┐
│       Form e-mailed to M.P.S.   │
└─────────────────────────────────┘
                 │
                 ▼
┌─────────────────────────────────┐
│  M.P.S. verifies Professional License │
└─────────────────────────────────┘
                 │
                 ▼
┌─────────────────────────────────┐
│      Confirms client user info  │
└─────────────────────────────────┘
                 │
                 ▼
┌─────────────────────────────────┐
│ Transmits to client encrypted login │
│         password or ID          │
└─────────────────────────────────┘
```

A licensed physician or pharmacist contacts the medical prescription service (mps) via its web home page, which is accessible to the general public. Alternatively
5   the medical prescription service can be contacted by email, regular mail, fax, etc. Preferably, the potential client logs on to the website home page 710 and clicks onto a new user information form 715. The form is emailed to the medical prescription service 720. The medical prescription service verifies the professional license of the client 720 and assigns the client an encrypted login password or code 735. The
10   encryption login code is securely transmitted to the client.

Alternative methods of securing the medical prescription service website are sophisticated bodyscan coding. Bodyscan coding uses the client's eye, finger or hand prints to identify the client as an authorized user. The client's computer is adapted to scan the body part and transmit the information to the medical prescription service host
15   computer which matches the scan to a list of authorized clients. Other methods of

identifying the client so that only authorized users can access the sensitive information on the medical prescription service website can be also be used to limit access.

Payment for the service by the client physician or pharmacist can be made through a secure financial transaction system using a credit card. Secured financial transaction systems are known in the art available and easily available. Alternatively, direct banking or other methods of payment can be used.
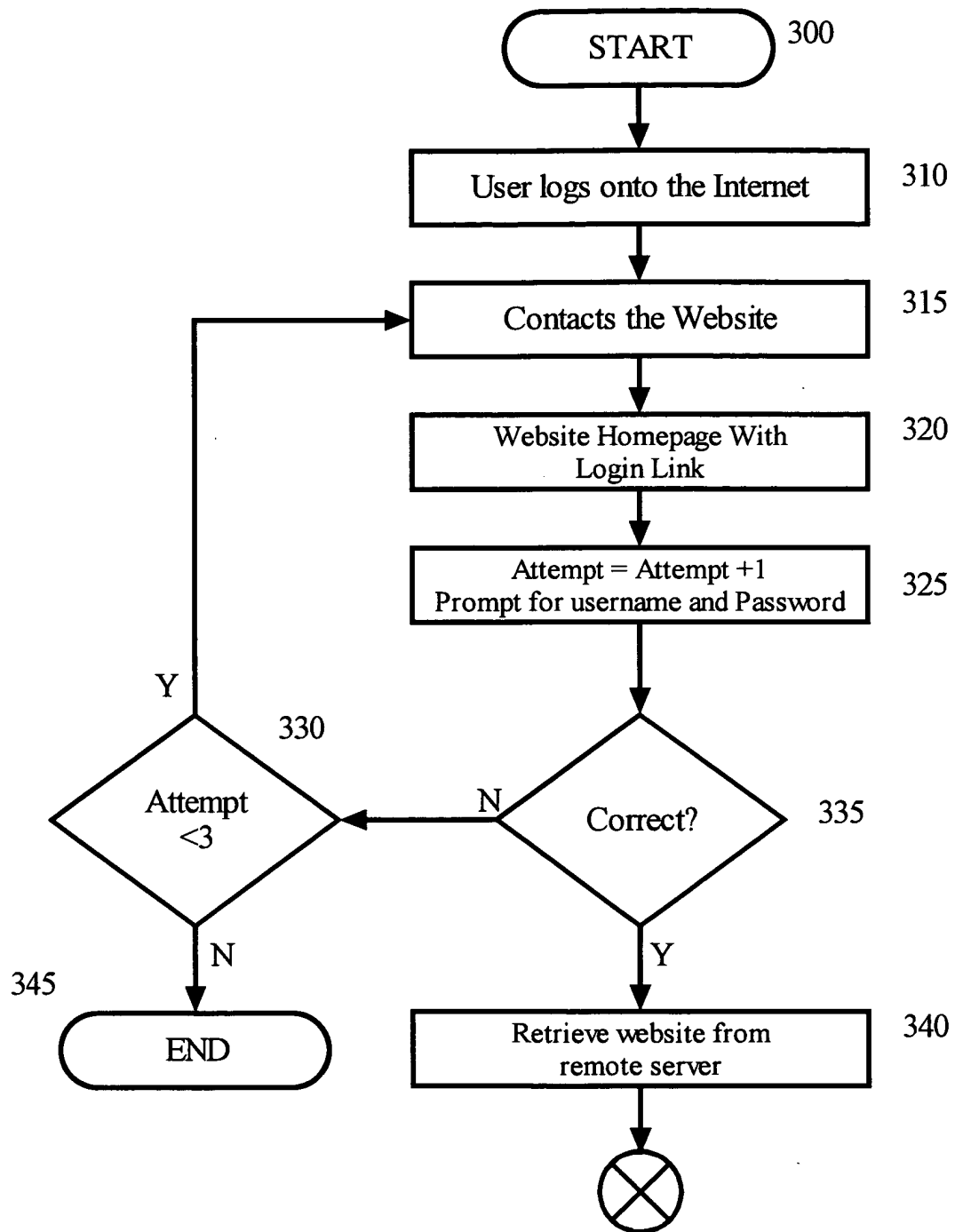
Fig. 1
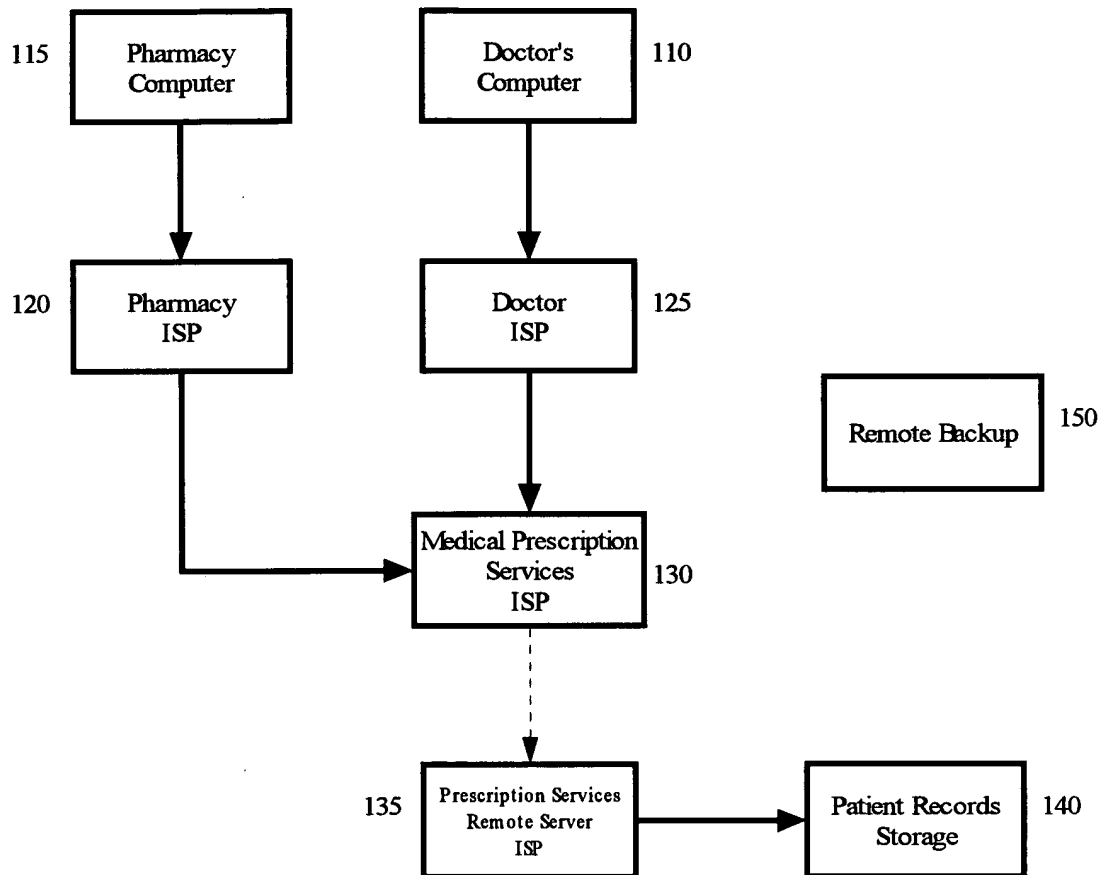
(All data flow is bi-directional)

(Secure)

Once the client has a secured, encrypted login password, the client can gain access to the medical prescription service website as illustrated in Fig. 1. Referring to the schematic of Fig. 1, the client doctor or pharmacy connects to the Internet by means of a general use computer 110, 115 via his or her own Internet Service Provider (ISP) 120, 125. The client can use any type of computer hardware that gives the client access to his or her ISP. New computer-type systems, not yet available, are within the scope of this invention if they enable access to the Internet and the website of the medical prescription service. The medical prescription service is contacted by way of its own ISP 130. The medical prescription service maintains a website having web pages for identification of clients, entry of prescriptions and patient, drug or medical informational databases. The introductory and login page(s) for the website are stored on the ISP 130 of the medical prescription service. Access to the introductory and login pages is available to the general public via the Internet.

Patient information, medical information databases, drug information databases and any other medically related database or sensitive data are stored on a remote server maintained by the medical prescription service. A server is a computer that is connected to one or more other computers allowing access to the data and programs stored on it.

Fig. 3

```
                    ┌──────────────┐
                    │    START     │  300
                    └──────┬───────┘
                           │
                           ▼
              ┌─────────────────────────┐
              │ User logs onto the Internet │  310
              └────────────┬────────────┘
                           │
                           ▼
              ┌─────────────────────────┐
   ┌─────────▶│   Contacts the Website   │  315
   │          └────────────┬────────────┘
   │                       │
   │                       ▼
   │          ┌─────────────────────────┐
   │          │  Website Homepage With   │  320
   │          │      Login Link          │
   │          └────────────┬────────────┘
   │                       │
   │                       ▼
   │          ┌─────────────────────────┐
   │          │  Attempt = Attempt +1    │  325
   │          │ Prompt for username and Password │
   │          └────────────┬────────────┘
   │                       │
 Y │                       ▼
   │        ◇            ◇
   │      Attempt   N   Correct?   335
   │      <3  330
```

Attempt = Attempt +1
Prompt for username and Password

Attempt <3   330

Correct?   335

N

Y

345

END

Retrieve website from remote server   340

⊗

Pending successful identification of the user as shown in Fig. 3, access to the
5   remote server is only available to clients with a secured, encrypted pass code or I.D.,

body scan, for example. Absolutely no access to the remote server is permitted until after the visitor to the medical prescription service homepage correctly enters all of the necessary security information. This information would typically consist of a subscriber ID number, username and secured, encrypted password, code or bodyscan.

Upon verification of the login information, the medical prescription service ISP 130 accesses the remote server 135, which records a log of that client's admittance into the system, and presents the customer with a list of options, such as updating an existing patients' record, viewing a patient record, etc.

Fig. 2
Data Flow Diagram

| Process | Data Flow | Data Store | External Entity |
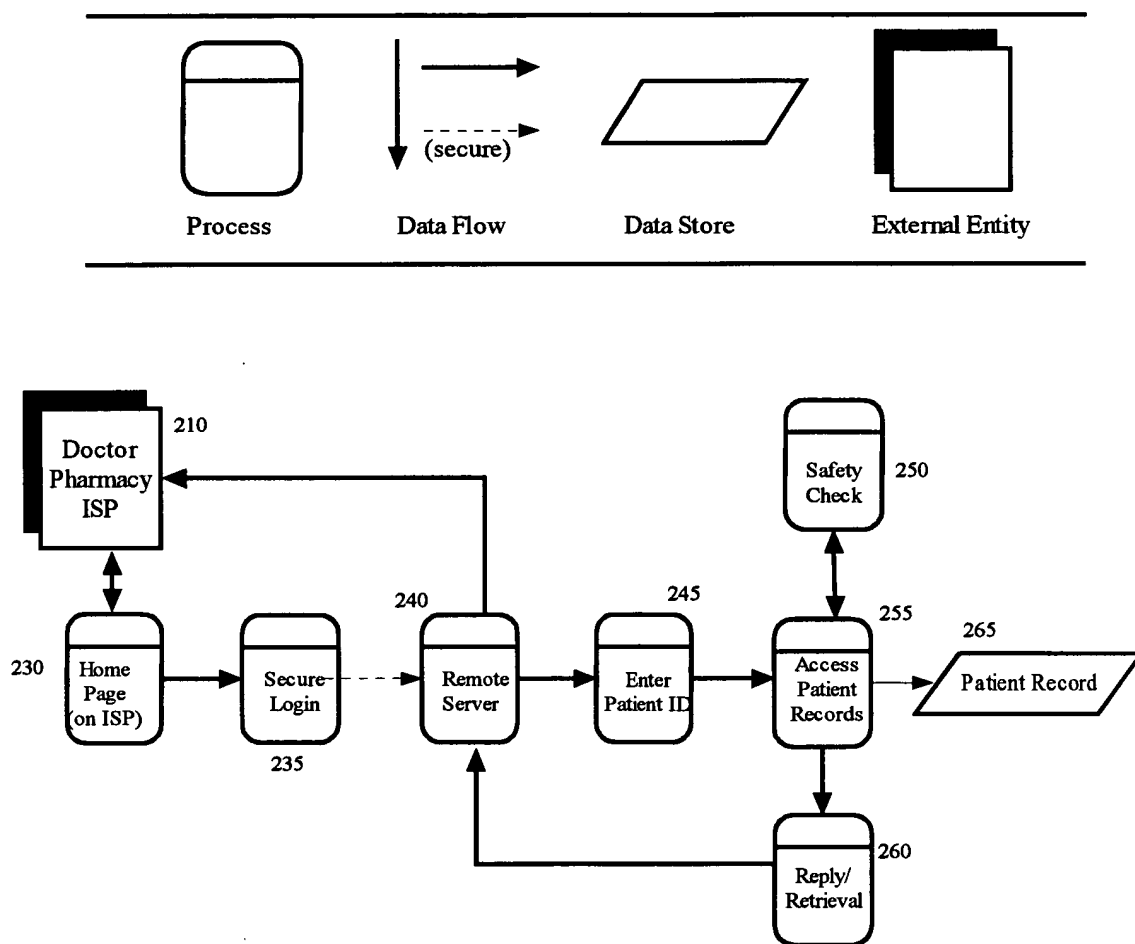
Patient records can be stored on a highly secure and recoverable storage system. Preferably, the backup system is a fail-safe system or safety check 250 that activates when the primary system fails so that there is no interruption of service. Other backup systems can also be used such as a RAID (Redundant Array of

Inexpensive Disks), which is also backed up daily to an external medium 150 such as tape, removable disk or recordable CD. Should disaster strike and one or more of the drives in the array fail, the data can be restored via the other drives in the array or from the backup media. In case of catastrophe, such as fire, flood, or other non-recoverable destruction of patient records, a reasonably current copy of all data can be stored at a Remote/Off-site location 150.

A secure Internet information server is required for the medical prescription service of this invention. Preferably, the server can support a high bandwidth connection to the Internet, encryption and support for redundant and highly secure storage devices such as RAID (Redundant Array of Inexpensive Disks) controllers and removable media backups. Hardware and operating system software may vary. Encryption as use in reference to this invention is any procedure that converts data into a form that prevents anyone but the intended recipient from reading the encrypted data. Both Netscape's® Navigator™ and Microsoft's® Internet Explorer™ have encryption built in and automatically use it whenever transmitting data over a secure network. Preferably, other secure encryption programs can be used to ensure that access to the medical prescription service website, other than the homepage, is limited to authorized clients. Alternatively, host Internet server systems are available that can provide a secured website. One such fully functional Internet server system is marketed under the trademark, VSERVER™.

High capacity storage and backup both on and off site are preferred. For primary storage, a ratio of less than one megabyte of storage per patient, physician and pharmacy can be used for storing patient prescription, physician and pharmacy identification information. Alternatively, the storage space can be increased or decreased depending on the amount of data regarding each patient that is desired. In one embodiment, about 10 to 20 gigabytes of additional storage are preferred for the system software and operating system. Again, the amount of storage space is dependent on the amount of data and databases the medical prescription service desires to be available to clients. Alternative embodiments of this invention can include a system and process of storing a patient's entire medical history as well as pharmaceutical information. These embodiments require additional storage space.

In one aspect of this invention, the Internet service provider can also store the encrypted patient information and drug prescription information. The preferred Internet service provider comprises a secure server that allows a remote server to be connected to its network. Storing the sensitive patient information and drug prescriptions on a remote server that is operated by the medical prescription service is an additional

security precaution. Preferably, sensitive patient information is not stored by a third party server. Preferably, the data is not stored on a system shared by unauthorized users, vulnerable to hacking or other abuse. Control over backups and the integrity of patient information is paramount to the successful operation of this invention.

5   In an alternative system, security can be maintained through the use of "Digital Certificates, electronic files that act like an online passport. They are issued by a trusted third party, a certificate authority (CA), which verifies the identity of the certificate's holder. They are tamper-proof and cannot be forged. Both Netscape's® Navigator™ and Microsoft's® Internet Explorer™ (versions 3 and above respectively)

10   support   Digital   Certificate.   Access   is   available   via "http://home.netscape.com/security/techbriefs/index.html".   An ODBC (Open Database Connectivity) compliant database in which to store patient records is also preferred. ODBC databases are accessible over a network and capable of being manipulated using Structured Query Language (SQL). SQL server software can be installed on the

15   remote server to access and modify the patient database.

       In one embodiment of the present invention, the user/client accesses the website via the Internet. The homepage for the website can reside on the medical prescription service's ISP (Internet Service Provider) and consists of an introductory splash screen along with links to information about the site and its services, contact

20   information, and membership application, as well as a link for accessing patient information. At this level, all website information resides on the ISP. Absolutely no access to the remote server containing crucial and sensitive patient information or databases is permitted until after the visitor passes all necessary security.
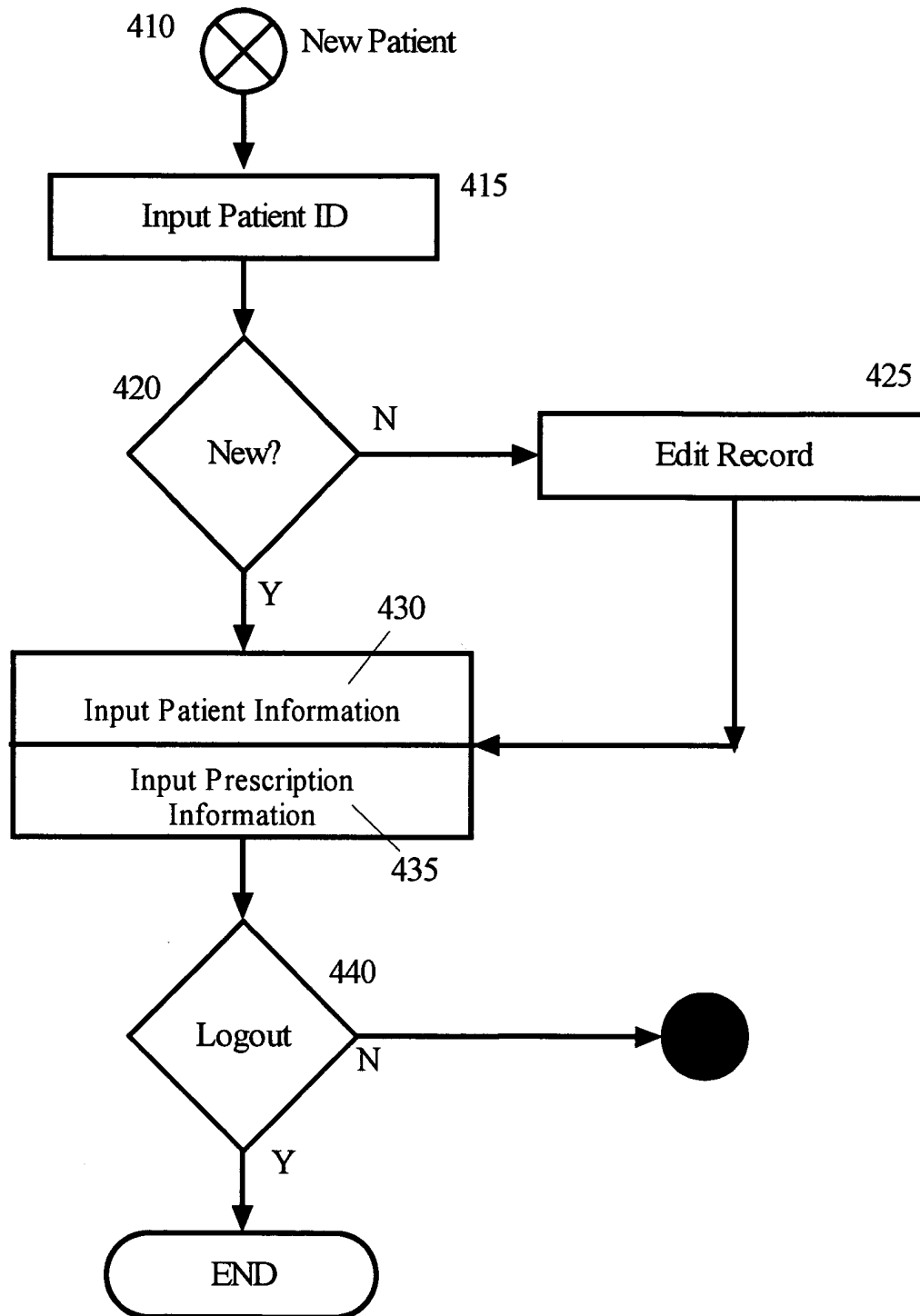
       Preferably, the user enters an ID, body scan, username or password before

25   gaining access to the remote server. Upon verification, the ISP connects to a remote server using an encrypted and secure link. "Encryption" refers to the encoding of information transmitted over the Internet to prevent it from being read by anyone without the proper authorization. Encryption is built in to the most popular web browsers in use today (Microsoft's® Internet Explorer™ and Netscape's®

30   Navigator™/Communicator Suite™) and is performed automatically. "Encryption challenged" web browsers will not be permitted to enter the system.

       The remote server then acknowledges or identifies the client by name and presents the client with a menu of available options. The client enters the identifying information of the patient whose records they wish to access. This can comprise the

35   patient's name, ID number, social security number, drivers license number, phone number, or any combination thereof. The system then retrieves the patient's record

and displays any pertinent information and/or a menu of options. Alternatively, the doctor/client can create a patient record file with patient identifying information as illustrated in Fig. 4.

Fig. 4

410 ⊗ New Patient

↓

Input Patient ID — 415

↓

420 ◇ **New?** —N→ 425 **Edit Record**

Y↓

430

Input Patient Information

Input Prescription Information

435

↓

440 ◇ **Logout** —N→ ●

Y↓

(**END**)

Patient records are then accessed and displayed for the client. If changes or updates are made to the patients record, such as the addition of a new prescription, the

system then can check the new medication against the list of other drugs and therapies the patient may be under. This check searches for dangerous drug interactions or any activities that should not be followed while using said medication. Only doctors with the proper authorization code are allowed to make changes to a patient record.
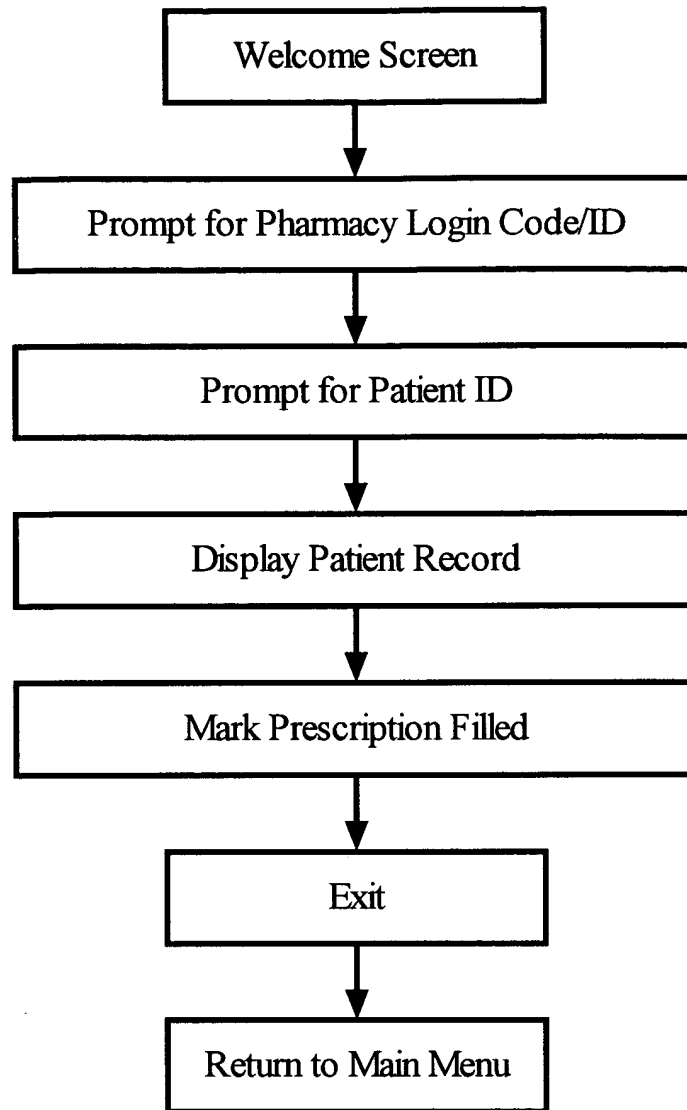
5   After the doctor or one his authorized medical personnel enters the prescription, the doctor can request another patient record or log off. If the doctor/client fails to log off, automatic log off occurs within a specific period of time, fifteen minutes for example.

The patient, patient's representative or doctor can then contact a client pharmacy to have the prescription filled.

10

Fig. 6

```
          ┌─────────────────────────┐
          │     Welcome Screen      │
          └────────────┬────────────┘
                       │
                       ▼
     ┌───────────────────────────────────────┐
     │   Prompt for Pharmacy Login Code/ID    │
     └────────────────────┬──────────────────┘
                          │
                          ▼
     ┌───────────────────────────────────────┐
     │          Prompt for Patient ID         │
     └────────────────────┬──────────────────┘
                          │
                          ▼
     ┌───────────────────────────────────────┐
     │          Display Patient Record        │
     └────────────────────┬──────────────────┘
                          │
                          ▼
     ┌───────────────────────────────────────┐
     │        Mark Prescription Filled        │
     └────────────────────┬──────────────────┘
                          │
                          ▼
          ┌─────────────────────────┐
          │          Exit           │
          └────────────┬────────────┘
                       │
                       ▼
          ┌─────────────────────────┐
          │    Return to Main Menu  │
          └─────────────────────────┘
```

The client/pharmacy, registered according to the flowchart of Fig. 7, connects to the Internet by means of a computer and its ISP. As depicted in Fig. 6, it accesses the
5 medical prescription service's home webpage, enters its I.D., pass code or body scan and is connected to the patient record. The pharmacy can download the prescription or make a hard copy so that prescription can be filled. The client/pharmacy then records that prescription is filled and logs off. Automatic log off occurs within a specific period of time, fifteen minutes for example. The pharmacy can make a further request. The
10 system then reports back to the client the results of their request regarding databases

or links available on the medical prescription service website. From there, the pharmacy/client can either modify their request, access another patient record or logoff.

The foregoing description is illustrative and explanatory of preferred embodiments of the invention, and variations in the size, shape, materials and other details will become apparent to those skilled in the art. It is intended that all such variations and modifications which fall within the scope or spirit of the appended claims be embraced thereby. Although described in terms of the preferred embodiments shown in the figures, those skilled in the art who have the benefit of this disclosure will recognize that changes can be made to the individual steps which do not change the manner in which the system and process achieve their intended result. All such changes are intended to fall within the scope of the following non-limiting claims.